

CLAIMS:

1. An engine, comprising:

a cylinder block having a cylinder;

5 a cylinder head attached to the cylinder block, wherein the cylinder head has an inner wall that closes an opening of the cylinder;

at least one intake valve provided in the cylinder head;

at least one exhaust valve provided in the cylinder head;

10 and

an injector provided in the cylinder head, wherein the injector injects fuel into the cylinder,

wherein the inner wall of the cylinder head has at least two valve openings, an injection port, and a notch, wherein

15 each valve opening corresponds to one of the intake and exhaust valves, and is opened and closed by the corresponding valve, wherein fuel injected by the injector passes through the injection port, wherein the notch is formed in a part of the inner wall that defines the injection port, and wherein  
20 the notch prevents fuel injected by the injector from interfering with the cylinder head, and

wherein, when the inner wall is viewed along an axis of the cylinder, a line that passes through a center of the injection port and a center of one of the valve openings that  
25 is adjacent to the injection port, or the center of an adjacent valve opening, is defined as a first line, and a line that is perpendicular to the first line is defined as a second line, and wherein, when the inner wall is divided into sections by the second line, the notch is located in the  
30 section in which the adjacent opening exists, and the notch is displaced from the first line.

2. The engine according to claim 1, wherein, when the inner wall is viewed along the axis of the cylinder, the notch  
35 is oriented from the injection port toward a space between the

first line and the second line, and wherein the injector injects fuel along the notch.

3. The engine according to claim 1, wherein the injector  
5 has a fuel injection portion that is directed to the injection port, and wherein the fuel injection portion is recessed in the cylinder head with respect to the inner wall.

4. The engine according to claim 1, wherein the notch is  
10 one of a plurality of notches.

5. The engine according to claim 1, wherein the adjacent valve opening is one of a pair of adjacent valve openings, and wherein the notch extends from the injection port and is  
15 parallel to a line that passes through centers of the adjacent valve openings.

6. The engine according to claim 1, wherein the adjacent valve opening is one of a plurality of adjacent valve  
20 openings, and wherein the notch extends from the injection port toward a space between the adjacent valve openings.

7. The engine according to claim 1, wherein the notch is formed like a slit.  
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8. The engine according to claim 1, wherein the injection port is located in a part of the inner wall that is close to the periphery of the cylinder.

30 9. A cylinder head having an inner wall that closes an opening of a cylinder of an engine,

wherein an injector is provided in the cylinder head, wherein the injector injects fuel into the cylinder, wherein the inner wall of the cylinder head has at least two valve  
35 openings, an injection port, and a notch, wherein one of the

valve openings is opened and closed by at least one intake valve, and the other valve opening is opened and closed by at least one exhaust valve, wherein fuel injected by the injector passes through the injection port, wherein the notch is formed  
5 in a part of the inner wall that defines the injection port, and wherein the notch prevents fuel injected by the injector from interfering with the cylinder head, and

wherein, when the inner wall is viewed along an axis of the cylinder, a line that passes through a center of the  
10 injection port and a center of one of the valve openings that is adjacent to the injection port, or the center of an adjacent valve opening, is defined as a first line, and a line that is perpendicular to the first line is defined as a second line, and wherein, when the inner wall is divided into  
15 sections by the second line, the notch is located in the section in which the adjacent opening exists, and the notch is displaced from the first line.

10. The cylinder head according to claim 9, wherein, when  
20 the inner wall is viewed along the axis of the cylinder, the notch is oriented from the injection port toward a space between the first line and the second line, and wherein the injector injects fuel along the notch.

25 11. The cylinder head according to claim 9, wherein the notch extends inward in the cylinder.

12. The cylinder head according to claim 11, wherein the  
30 injector has a fuel injection portion that is recessed in the cylinder head with respect to the inner wall, and wherein the notch reaches the fuel injection portion.

13. The cylinder head according to claim 9, wherein the  
notch is one of a plurality of notches.

14. The cylinder head according to claim 9, wherein the adjacent valve opening is one of a pair of adjacent valve openings, and wherein the notch extends from the injection port and is parallel to a line that passes through centers of  
5 the adjacent valve openings.

15. The cylinder head according to claim 9, wherein the adjacent valve opening is one of a plurality of adjacent valve openings, and wherein the notch extends from the injection  
10 port toward a space between the adjacent valve openings.

16. The cylinder head according to claim 9, wherein the notch is formed like a slit.

15 17. The cylinder head according to claim 9, wherein the injection port is located in a part of the inner wall that is close to the periphery of the cylinder.